

PRODUCT SUMMARY



Production Console

NEOTEKCORPORATION

NEOTEK CORPORATION began the development of the Production consoles in response to specific demands of broadcasters. High quality facilities, such as WFMT-Chicago, have been using NEOTEK recording consoles because of their technical and sonic performance. The quality of material recorded on NEOTEKs was evident to jingle houses and their clients. Because of their sound quality and reliability, broadcasters have even used NEOTEK recording consoles for live transmission on national and international links. Rather than continue making custom modifications to recording consoles, NEOTEK developed the Production console system so that broadcasters could combine unmatched sonic performance with all of the operational features they require.

Design features

From the first, NEOTEK consoles have been noted for innovation in systems and circuit design. Production system consoles, like all NEOTEKs, are made completely transformerless in a manner that is transparent to the user except for improved performance. NEOTEK has years of experience in the design of transformerless consoles; the first were made nearly ten years ago and included the original instrumentation amplifier microphone preamp. This experience and our emphasis on maximum sonic performance has meant that there has never been a case of NEOTEK consoles suffering radio frequency interference, even in extraordinarily strong fields.

Systems overview

Contemporary production facilities are increasingly involved in multitrack recording: the recording of successive tracks on a multitrack tape machine, followed by processing and mixing down to a stereo or mono master. The process of subsequently adding input signals to open tracks of the multitrack recorder is termed overdubbing. NEOTEK Production system consoles accommodate these processes with submaster modules which serve to send signals to a multitrack recorder and to monitor those signals in synch with signals that have been previously recorded. Submaster modules provide an independent mix for the talent's headphones as well as a stereo monitoring mix for the engineer. In the concluding mixdown step, outputs from the multitrack recorder are returned to input channels so that equalization and effects such as reverberation may be added, and the final balances are established.

Production facilities

In addition to the recording and mixing features of the Production console, there are additional features which specifically suit broadcast environments and the narration/production process in particular. These include input channels with live mic sensing and individually programmable studio and control room mute logic, overpress cue on all faders, and fader logic signals to control external equipment. The monitoring module provides slate facilities, talkback to studio and talent headphones, a dozen direct stereo inputs, an operator's headphone amp that works with the cue and solo systems, and an ON AIR relay driver.

Stereo line input

In addition to choices of mic/line input modules, Production system consoles offer a stereo line input module, of which any number may be specified. These accept either of two balanced stereo lines and provide a full complement of routing and control functions. There are numerous internal trims and insert patch options. These modules provide logic functions in addition to those of a mic/line input, including start pulses that follow the Line A/B select switch.

Standard features

One of the design criteria for all NEOTEK consoles is that they offer the user a diversity of configuration options; the Production console system in particular is adaptable to a wide range of installation complexity. Modern production facilities must be able to compete with professional recording studios and production consoles must therefore meet contemporary expectations of flexibility, ease and speed of operation, and sonic performance. The NEOTEK Production console system addresses both aspects with its well developed standard features and a wealth of specifiable options.

Mic/line inputs have two equalizer section options, including a four-band multimode parametric version, and all input modules offer four or eight panned subgroup assignment, four auxiliary sends, numerous routing switches, patch and direct output options, and solo or pre-fader listen in addition to overpress cue on faders. All major console inputs and outputs are electronically balanced, and there are modular options for expanding the number of balanced stereo lines which the console can accept. Stereo and multitrack bus outputs have high resolution peak/VU meters and the stereo outputs also have standard VU meters with accurate ballistics; additional metering is optional. The power supply is a separate rack mount unit which provides audio, logic, and microphone phantom power.

STEREO LINE INPUT



Production Console

The new NEOTEK Series I Production consoles comprise a unique console system specifically developed for the requirements of broadcast production engineering. The modules used in Production consoles have the same front panel controls and plug into a motherboard and frame system that is similar to the Series I Recording and Sound Reinforcement consoles, yet they feature unique internal logic functions which result in an operational system tailored to expectations of the broadcast environment. Broadcast facilities which demand the highest audio quality have long chosen NEOTEK consoles for their most critical recording applications; now the new Series I Production consoles deliver this same outstanding sonic performance in a console system offering operational features optimally suited to production engineering.

Stereo Line Input Module

The Stereo Line Input module provides transformerless balanced inputs for two stereo lines. When LINE B is selected, the module's automatically generated start pulse is routed to a second corresponding output terminal so that the external device or internal clock referenced to the second stereo line will be started automatically in the same manner as the unit referenced to Line A. A pair of switches changes the outputs of the module from the normal stereo signal to either a mono signal from the right side, a mono signal from the left side, or a mono signal derived from the sum of both sides. A front panel balance control allows a +/- 6 dB trim of the channel balance and eliminates any temptation to accomplish this function by using the screwdriver adjustable trims on the main console outputs.

The output signal of the module can be routed to pairs of the submasters and directly to the main stereo mix using the assignment switches at the top. Whether Production consoles are wired to user-supplied patchbays or are specified with NEOTEK's built-in patch bays, there are optional insertion points in the Stereo Line Input module which may be brought to patchbay jacks. There is a stereo insert point on LINE B and LEFT/RIGHT/MONO switches. There is also an optional stereo insertion point in the channel's main signal which is after these switches but before the balance control and fader. A third optional stereo insertion point is located after the fader and before the logic-controlled channel mute.

The Stereo Line Input module provides sends to the four console auxiliary buses, A,B,C, and D. Normally buses A and B are pre-fader and are used a stereo Foldback mix to the talent's headphones. Switches near the send controls

allow these signals to be obtained from a mono combination of the channel's left and right signals or to be switched so as to source from the post-fader signals in order that they be useable for additional effects sends. The C and D bus signals are post-fader and have a switch to source them from the channel's mono signal.

Other switches in this group invert the polarity of the left or right sides of the stereo signal. A SOLO switch is provided which replaces the Control Room monitoring signal with the module's pre-fader signal, in mono. An internal jumper option allows the selection of the post-fader signal for the Solo function. The CUE switch accomplishes the same effect as moving the channel's fader into the detented Cue position at the bottom of its travel; it causes the pre-fader signal to appear in the Cue speaker feed and one side of the engineer's headphones, while dropping the Control Room monitor speaker level by 26 dB. The special Penny & Giles stereo fader on the Stereo Line Input module also actuates this Cue function when moved to its overpress position.

The module's ON/START switch works in combination with logic signals from the stereo fader below. If the fader is in the Cue position at the bottom of its travel when the momentary ON switch is actuated, the internal illumination of the ON switch will begin flashing but no other effect will occur. As soon as the fader is moved out of Cue, the channel turns on, the ON switch illuminates continuously, and a Start pulse (of selectable polarity) is sent to the Line A or Line B devices, depending on the line selected as the source of the module's input signal. If the fader is above the Cue position when the ON switch is actuated, these actions take place immediately.

One other aspect of Series I Production consoles deserves mention, especially in view of their use in broadcast facilities. Because of the emergence of transformerless balanced outputs, as well as unbalanced outputs in professional audio equipment, the problems of dealing with these and transformer balanced signals in patch bays have become acute. There is a NEOTEK publication which discusses these problems in detail, but suffice it to say that NEOTEK has given great attention to the matter and wires its patch bays accordingly. Although many signals enter the console through transformerless balanced stages, all signals in the patch bay are normally unbalanced. NEOTEK consoles have a deserved reputation for excellent technical specifications as well as immunity to radio frequency interference, and certainly no sacrifices have been made in this performance. What does result, however, is a patch bay that can be used without concern being given to problems of line unbalancing and termination, and greatly speeds and simplifies the increasingly complex engineering chores in a modern production studio.

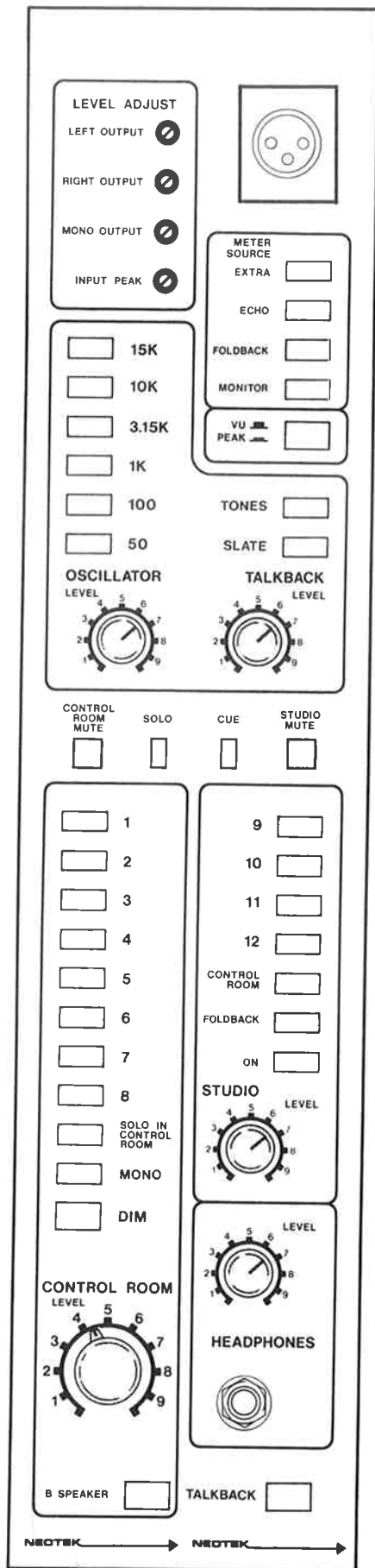
The NEOTEK Production Module comprises the heart of the Series I Production Console system. Its most basic function is to provide monitoring facilities for the engineer, but it is also the nerve center for the logic controlled functions that originate from input modules and faders.

The Production Module includes screwdriver trims on the balanced outputs of the main left, right, and mono mixes. A nearby screwdriver trim sets the threshold level for the peak level indicators on all input modules. A front panel XLR connector is provided for a talkback microphone, typically with gooseneck.

A group of switches allows selection of the signal appearing at the main meter pairs (a pair of standard true-VU response meters and a pair of Peak/VU light column meters) from the main stereo outputs to either the monitoring signal, which would include the Solo signal or any stereo line being monitored, the Foldback signal which drives the talent's headphone amp from buses A and B, the Echo output to the chamber from buses C and D, or an Extra input which the user can wire to any stereo signal or pre-select switch. A related switch changes the ballistics of all the light column meters on the submasters and main mix outputs between peak and VU response; Peak mode has 10dB less sensitivity so that readings remain on scale.

A built-in lab quality oscillator provides a selection of switch selectable, and therefore precisely resettable, frequencies from 50 Hz to 15 kHz. The TONES switch brings the oscillator up on the main console buses and in the patch bay for alignment of external equipment or laying down tones at the head of a master tape. The SLATE switch sends both a 30 Hz tone and the Talkback microphone to the mix buses. In this condition the Talkback signal alone is also available at the Studio playback speakers and in the Foldback mix. When either the SLATE or TONES switches is operated, logic functions in the Production Module automatically drop the monitoring speaker level by 26dB (same as the manual Dim function) and mute all other outputs to the Studio playback speakers.

In conjunction with logic signals produced by the input and submaster channels and their faders, a number of Production Module functions and options are available. Each Penny & Giles fader on an input channel or submaster controls an Overpress Cue function which causes the pre-fader audio signal of the module to appear in either side of the console's headphone amp and at a Cue speaker amp feed when the fader is moved into a detented position at the very bottom of its travel. In addition, each such fader automatically provides a start pulse for an external tape drive or timer as soon as the latter of both the channel ON switch is actuated and the fader is moved off its Cue detent. When any Cue is actuated an LED is lit and the Control Room signal is dropped 26dB so that the Cue speaker is more audible; this feature, like most others, is optionally defeatable.



Each microphone input channel generates a logic signal when the Microphone input is selected, the channel is on, and the fader is up. This signal causes a mute in the Control Room and Cue speaker feeds and/or in the Studio playback feed. This live-microphone-sense action in the Control Room and Studio is enabled by two switches on the Production module which illuminate when the respective monitoring signal is automatically muted. A closure to ground is also provided to automatically actuate an external On-Air relay or control a skimming recorder.

The Production Module also provides for the customary Solo function from input channels including Stereo Line Input modules, echo return channels, submasters, and auxiliary bus masters A,B,C, and D (Foldback and Echo sends). Actuating a SOLO switch causes the signal being monitored in the engineer's headphones and the Control Room, if so enabled by the SOLO IN CONTROL ROOM switch, to be replaced with the pre-fader signal of the channel in Solo. An LED indicates this condition, and the Soloed signal also appears in the main meter pairs. SOLO IN CONTROL ROOM can also be used, in effect, Solo or un-Solo several channels simultaneously for easy reference to a group of signals whose Solo switches are left latched.

A dozen balanced stereo lines appear for monitoring at the Production Module; eight in the Control Room and four in the Studio. These can be paralleled with each other or with channel line inputs, and a pair can be routed to another selector switch module. In addition to stereo lines, the Foldback mix or the signal appearing in the Control Room may also be selected to the studio. As an accident prevention measure, if the STUDIO ON switch is not latched, the inputs to the Studio playback amp are shorted to ground.

A precision tracking stepped attenuator controls the audio level in the Control Room. A switch is provided to put the Control Room into Mono, and a DIM switch drops the level by a fixed amount to allow keeping track of the audio and returning to exactly the same level after a conversion, phone call, or other interruption. The B SPEAKER switch routes the Control Room signal to an alternate amp/speaker combination.

The integral engineer's stereo headphone amp has sufficient capacity to destroy most headphones; its output can be paralleled to additional jacks.

The TALKBACK switch is logic controlled and may be removed by a simple short to ground. Its action causes the level of the monitoring signal in the Control Room to drop (Dim) but not to mute, while sending the Talkback microphone to the Studio (if on) and the Foldback feeds. This allows two-way conversion with the talent in the Studio while any Talkback switch is held down.

PHANTOM OFF

1-2

3-4

5-6

7-8

2-MIX

LINE B

LEFT MONO

RIGHT

BALANCE

PEAK

L-PHASE

R-PHASE

C.D. MONO

A.B. MONO

A.B. POST

SOLO

CUE

START ON

PHANTOM OFF

1-2

3-4

5-6

7-8

2-MIX

MIC/LINE TRIM

LINE

HIGH

MID

LOW

HIGH PASS FILTER

PEAK

- PHASE

EQ OUT

C. PRE

B. POST

A. POST

SOLO

PAN

MUTE

PHANTOM OFF

1-2

3-4

5-6

7-8

2-MIX

MIC/LINE TRIM

LINE

PULL UP KNOB FOR SHLELF

HIGH

MID

LOW

HIGH PASS

PEAK

- PHASE

EQ OUT

C. PRE

B. POST

A. POST

SOLO

PAN

MUTE

PHANTOM OFF

1-2

3-4

5-6

7-8

2-MIX

MIC/LINE TRIM

LINE

PULL UP KNOB FOR SHLELF

HIGH

MID

LOW

HIGH PASS

PEAK

- PHASE

EQ OUT

C. PRE

B. POST

A. POST

SOLO

PAN

MUTE

EQ

SOLO

ECHO LEVEL

SUBMASER TRIM

PHASE

SOLO

ECHO RETURN LEVEL

MIX LEVEL

PAN

MUTE

LEVEL ADJUST

LEFT OUTPUT

RIGHT OUTPUT

MONO OUTPUT

INPUT PEAK

METER SOURCE

EXTRA

ECHO

FOLDBACK

MONITOR

VU PEAK

OSCILLATOR LEVEL

TALKBACK LEVEL

CONTROL ROOM MUTE

SOLO

CUE

STUDIO MUTE

1

2

3

4

5

6

7

8

SOLO IN CONTROL ROOM

MONO

DIM

CONTROL ROOM LEVEL

HEADPHONES

B SPEAKER

TALKBACK

Technical specifications

NEOTEK consoles consistently yield superior technical performance. In terms of noise, distortion, and bandwidth they are actually superior to 16-bit digital recorders. Since multitrack recording involves passing the same signals through the console several times, the low noise and distortion which distinguish NEOTEK designs is of special importance in preventing the buildup of audible grunge. In the Production console system particular attention has been paid to specifications which are of concern in broadcast applications. These include freedom from noises caused by switches or logic signals, isolation from channel to channel and between left and right, freedom from subtle as well as obvious radio frequency interference, and serviceability. Although all consoles are built to order, uniformity of construction and conservative design insures top performance from every unit. NEOTEK can furnish generalized specifications, but can also provide specific measurements from consoles under manufacture and warranty that performance in similar units.

Sales and warranty

NEOTEK is familiar with the unique requirements of the varied systems into which our consoles are specified and we are prepared to provide direct assistance in selecting the console and the configuration that will best meet a particular need. Our engineers are available to answer specific questions. NEOTEK consoles are built to individual order in the United States and are sold through a carefully selected international network of dealers who can provide installation and after sale support. All NEOTEK consoles are covered by a limited one-year parts and labor warranty; service is normally accomplished simply by module exchange.

Dimensions

Maximum height	35.3 inches
Height at Arm rest	29.0 inches
Front to back	35.6 inches
Width	26.5 inches
	+ Inputs x 1.77 inches

A table top and console version is also available.

